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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/072,688 | 02/08/2002 | Fumitake Yoshikawa | NEC 01FN071 | 2514 |
| 7590 | 06/30/2004 | | EXAMINER | |
| Norman P. Soloway HAYES SOLOWAY P.C. 130 W. Cushing Street Tucson, AZ 85701 | | | LIU, MING HUN | |
| | | ART UNIT | PAPER NUMBER | |
| | | 2675 | 5 | |
| DATE MAILED: 06/30/2004 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|--------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/072,688 | YOSHIKAWA, FUMITAKE |
| | Examiner Ming-Hun Liu | Art Unit 2675 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.
 - 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-10 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,751,267 to Sato.

In reference to claims 1 and 7, it is apparent from figure 2 of Sato that he discloses a LCD display with a scanning (item 3) and signals lines (item 2). Sato's invention also includes respective horizontal (item 7) and vertical drivers (item 8). In figure 1, the control circuit that creates gradation data by inverting the polarity of the data signals in synchronization with the horizontal driving circuit (column 4, lines 34-37). Sato's invention is similar to the one being claimed however how Sato does not explicitly express the gamma correction function in the matter that the applicant has outlined. Nonetheless, one skilled in the art would understand that the transmittance graphs 5 and 7 as described on column 8, 14-30 are intimately related to the gamma correction values. It is understood from figure 5 that due to the polarity inversions, the transmittance and drive voltage are symmetrical in relation. It is also understood that in order to achieve the desired transmittance a similar symmetrical gamma corrective curve would also have to be implemented. As Sato clearly explains on column 8, line 26-30 "the drive voltage becomes proportional to the transmittance index as shown in figure 8 by converting the level of image signal in accordance with the compensation characteristics". It is established that the gamma

corrections are proportional to the transmittance values and therefore safe to assume that the same symmetrical nature exists for the gamma correction as the luminance curve shown in figure 5. This assumption is supported by Sato's figure 9 which from the description on column 8, lines 30-33 is the gamma correction graph.

In reference to claims 2-4 and 8-10, it is well understood to ones skilled in the art that gamma correction curves can vary in slope and shape depending on the particular correction required for the particular display. The example Sato sites in figures 9 and 10 include both straight and curve correction lines. Finally it is clear from Sato's figure 1 that the correction is given to the horizontal drivers (item 7).

In reference to claim 5, Sato's embodiment does not use bit inversion but rather line inversion (figure 5). However, these inversion methods are well known in the art. On a general basis, Sato's invention states that the inversion and correction happens on a particular frequency. With the several different inversion methods known in the art, Sato's disclosure encompasses the different possibilities. It would have been simple to convert Sato's invention to bit inversion as his invention has all the necessary components to perform bit inversion. One skilled in the art would have been motivated to rely on bit inversion if he believed bit inversion improves on the display quality as described in theory presented in Sato column 1, line 62-column 2, line 9.

3. Claim 6 is rejection rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sato and US Patent 6,075,477 to Kokubun et al.

In reference to claim 6, Sato's invention is similar to the one being claimed however, he does not explicitly teach the use of a resistive ladder structure in the realization of the gamma

correction circuit. It is well known in the art that resistive ladder structures are commonly used in the gamma correction circuits. This fact is made apparent by Kokubun, column 7, lines 45-50. It would have been obvious to one skilled in the art to incorporate Kokubun's structure into Sato's circuit so that different gamma corrective values can be easily modified and achieved.

Response to Arguments

4. Applicant's arguments filed 4/12/2004 are have been fully considered but they are not persuasive. From Sato's figure descriptions on column 6 and teachings in the specifications, figures 9 and 10 are correction graphs.

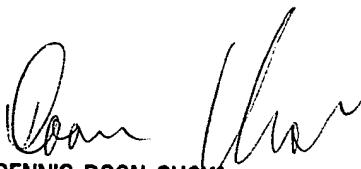
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ming-Hun Liu whose telephone number is 703-305-8488. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras can be reached on 703-305-9720. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ming-Hun Liu



DENNIS-DOON CHOW
PRIMARY EXAMINER